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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/920,635	08/03/2001	Peter J. Janssen	US010347	6071

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EXAMINER

SHAPIRO, LEONID

ART UNIT PAPER NUMBER

2677

DATE MAILED: 12/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/920,635	JANSSEN ET AL	
	Examiner	Art Unit	
	Leonid Shapiro	2677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s), _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 16-20 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3, 14, 16-17,19 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA (Admitted Prior Art) in view of Haruhiko (JP No. 07-199866) and Murade (US Patent 6,330,044 B1).

As to claim 1, APA teaches a liquid crystal display (LCD) device (See Fig. 1, item 100, in description See paragraph 003), comprising: a plurality of pixels arranged in a matrix of row and columns, each pixel including, a pixel switching device having first and second terminals and control terminal (See Fig.1, items 110,120,150,112, in description See paragraph 004), and a storage device connected to the first terminal of the pixel switching device (See Fig. 1, items 112, 114, in description See paragraph 005); a plurality of data lines connected to the second terminals of the pixel switching device; a plurality of data drivers connected to the data lines and providing image data to the data lines (See Fig.1, items 110,120,130,112, in description See paragraph 004); a plurality of scanning lines connected to the control terminals of the pixel switching devices for selectively connecting the first and second terminals of the pixel switching devices to provide the image data to the storage device (See Fig.1, items 110,150,160,112, in description See paragraphs 004-005).

APA does not show at least one switch responsive to a corresponding control signal to selectively connect two of data lines to each other-such that image data applied by a data driver is simultaneously applied to at least two data lines.

Haruhiko teaches at least one switch responsive to a corresponding control signal to selectively connect two of data lines to each other (connecting switches are turned on in period when image signal is not inputted to signal lines) (See Drawings 1,3, items 1-1, 5, 2-1, in description See page 2, paragraph 0008, page 3, paragraph 0017, page 4, paragraph 0025). It would have been obvious to one of ordinary skill in the art at the time of invention to implement column lines connection as shown by Haruhiko in the APA apparatus in order to selectively connect two of the data lines to each other.

APA and Haruhiko do not disclose image data applied by a data driver is simultaneously applied to at least two data lines.

Murade teaches image data applied by a data driver is simultaneously applied to at least two data lines (See Fig. 3, items 3, 109, Col. 11, Lines 56-67).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Keeney et al. into the APA and Haruhiko system in order to achieve high integration of driving circuits (See Col. 2, Lines 24-28 in Murade reference).

As to claim 16, APA teaches an image display device (See Fig. 1, item 100, in description See paragraph 003), comprising: a plurality of pixels arranged in a matrix (See Fig.1, items 110,120,150,112, in description See paragraph 004), a plurality of column lines connected to the pixels (See Fig.1, items 110,120,130,112, in description

See paragraph 004); a plurality of column drivers connected to the column lines and providing data to the pixels (See Fig. 1, items 110, 120, 130, 112, in description See paragraph 004).

APA does not show means for selectively connect two column lines to each other.

Haruhiko teaches at least one switch responsive to a corresponding control signal to selectively connect two of data lines to each other (connecting switches are turned on in period when image signal is not inputted to signal lines) (See Drawings 1, 3, items 1-1, 5, 2-1, in description See page 2, paragraph 0008, page 3, paragraph 0017, page 4, paragraph 0025). It would have been obvious to one of ordinary skill in the art at the time of invention to implement column lines connection as shown by Haruhiko in the APA apparatus in order to selectively connect two of the column lines to each other.

APA and Haruhiko do not disclose image data applied by a data driver is simultaneously applied to at least two data lines.

Murade teaches image data applied by a data driver is simultaneously applied to at least two data lines (See Fig. 3, items 3, 109, Col. 11, Lines 56-67).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Keeney et al. into the APA and Haruhiko system in order to achieve high integration of driving circuits (See Col. 2, Lines 24-28 in Murade reference).

As to claims 2, 17, Haruhiko teaches at least one switch responsive to a corresponding control signal to selectively connect two of data lines to each other

(connecting switches are turned on in period when image signal is not inputted to signal lines) (See Drawing 1, items 1-1, 5, 2-1, in description See page 2, paragraph 0008, page 3, paragraph 0017, page 4, paragraph 0025).

As to claim 14, APA teaches identifying the detective column driver (See Fig. 1, item 130, paragraph 009).

As to claim 19, Haruhiko teaches a cross-column switch extending between two column lines selectively connected to each other (See Drawings 1,3, items 1-1, 5, 2-1, in description See page 2, paragraph 0008, page 3, paragraph 0017, page 4, paragraph 0025).

2. Claims 3, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA, Haruhiko and Murade as aforementioned in claims 1 in view of Keeney et al. (Pub. No. : US 2002/0113766 A1).

APA, Haruhiko and Murade do not disclose a register corresponding to each cross-column switch and providing the control signal for the cross-column switch.

Keeney et al. teaches a register (bypass bit from memory (registers)) corresponding to each cross-column switch and providing the control signal for the cross-column switch (See Fig. 2, items 34, 44, paragraph 0040).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Keeney et al. the APA, Haruhiko and Murade apparatus in order to repair inoperative pixels (See paragraph 0007 in Keeney et al. reference).

3. Claims 4, 6, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA, Haruhiko and Murade as aforementioned in claims 1,17 in view of Lee et al. (US Patent No. 6,028,442).

As to claims 4, 20, APA, Haruhiko and Murade do not show a common test line and at least one switch comprises a column test switch extending between a corresponding one of the data lines and the common line.

Lee et al. teaches a common test line and at least one switch comprises a column test switch extending between a corresponding one of the data lines and the common line See Fig. 5, items T1-T3, D1-D6, in description See Col. 3, Lines 13-24).

It would have been obvious to one of ordinary skill in the art at the time of invention to use common test line as shown by Lee et al. in the APA, Haruhiko and Murade apparatus in order use effectively LCD substrate space (See Col. 2, Lines 8-15 in the Lee et al. reference).

As to claim 6, APA, Haruhiko and Murade do not show a common test line and at least one switch comprises a column test switch extending between a corresponding one of the data lines and the common line.

Lee et al. teaches a common test line and at least one switch comprises a column test switch extending between a corresponding one of the data lines and the common line See Fig. 5, items T1-T3, D1-D6, in description See Col. 3, Lines 13-24).

It would have been obvious to one of ordinary skill in the art at the time of invention to use common test line as shown by Lee et al. in the APA, Haruhiko and

Murade apparatus in order use effectively LCD substrate space (See Col. 2, Lines 8-15 in the Lee et al. reference).

4. Claims 5, 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over APA, Haruhiko and Murade, Lee et al. as aforementioned in claims 4, 6 in view of Keeney et al..

APA, Haruhiko and Murade do not disclose a register corresponding to each switch and providing the control signal for the switch.

Keeney et al. teaches a register (bypass bit from memory (registers)) corresponding to each switch and providing the control signal for the cross-column switch (See Fig. 2, items 34, 44, paragraph 0040).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Keeney et al. the APA, Haruhiko and Murade apparatus in order to repair inoperative pixels (See paragraph 0007 in Keeney et al. reference).

5. Claim 8-9, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henley (US Patent No. 5,459,410) in view of Haruhiko and further in view of Murade.

As to claim 8, Henley teaches a method of repairing a defect in a liquid crystal display (LCD) device including a plurality of pixels arranged in a matrix of rows and columns (See Fig. 1, items 11, 13, 15, in description See Col. 4, Lines 49-65), a plurality of column lines connected to the plurality of pixels (See Fig.1, items 13, 11, in

description See Col. 4, Lines 49-65), the method comprising: identifying a defective column line in the LCD device, the defective column line being one of the plurality of column lines (See Fig. 2, 7, items 37, 29, 12i-12l, in description See Col. 2, Lines 29-34, Col. 8, Line 63-67, Col. 9, Lines 38-42).

Henley does not show a plurality of column drivers connected to the column lines and providing data to the pixels, and a plurality of switches each responsible to a corresponding control signal to selectively connect two columns lines to each other, connecting the defective column line to a second one of the column lines for a second one of the column in the LCD device.

Haruhiko teaches a plurality of column drivers connected to the column lines and providing data to the pixels (See Draw. 1, item 10, in description See page 3, paragraph 0016), and a plurality of switches each responsible to a corresponding control signal to selectively connect two columns lines to each other (See Drawings 1,3, items 1-1, 5, 2-1, in description See page 2, paragraph 0008, page 3, paragraph 0017, page 4, paragraph 0025).

It would have been obvious to one of ordinary skill in the art at the time of invention to implement column lines connection as shown by Haruhiko in the Henley apparatus to connect at least one pixel of the defective column to a second one of the column lines for a second one of the columns in the LCD device in order satisfy the need for the apparatus for repairing panels (See Col. 2, Lines 4-12 in the Henley reference).

Henley and Haruhiko do not show applying a control signal that image data applied to the second column line is applied to the at least one pixel.

Murade teaches image data applied by a data driver is simultaneously applied to at least two data lines (See Fig. 3, items 3, 109, Col. 11, Lines 56-67).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Murade into the APA and Haruhiko system in order to achieve high integration of driving circuits (See Col. 2, Lines 24-28 in Murade reference).

As to claims 9,11, Henley does not show connecting the defective column line to the second column line comprises closing a first switch one of the switches.

Haruhiko teaches a plurality of switches each responsible to a corresponding control signal to selectively connect two columns lines to each other (See Drawings 1,3, items 1-1, 5, 2-1, in description See page 2, paragraph 0008, page 3, paragraph 0017, page 4, paragraph 0025).

It would have been obvious to one of ordinary skill in the art at the time of invention to implement column lines connection as shown by Haruhiko in the Henley apparatus to connect at least one pixel of the defective column to a second one of the column lines for a second one of the columns in the LCD device in order satisfy the need for the apparatus for repairing panels (See Col. 2, Lines 4-12 in the Henley reference).

As to claim 13, Henley teaches identifying the defective column comprises identifying the portion of the first column line which is not connected to any of the column drivers (See Fig. 7, items 12i-12l, in description See Col. 9, lines 37-42).

6. Claims 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Henley, Haruhiko and Murade as aforementioned in claim 9 in view of Keeney et al.

APA, Haruhiko and Murade do not disclose a plurality of registers connected to the plurality of switches, storing a data value in one of the registers connected to the first switch to provide control signal to close the first switch.

Keeney et al. teaches a register (bypass bit from memory (registers) corresponding to each cross-column switch and providing the control signal for the cross-column switch (See Fig. 2, items 34, 44, paragraph 0040).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Keeney et al. the APA, Haruhiko and Murade apparatus in order to repair inoperative pixels (See paragraph 0007 in Keeney et al. reference).

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Henley, Haruhiko and Murade as aforementioned in claims 8 in view of Lee et al.

Henley, Haruhiko and Murade do not show closing a first and second of the switches connected to the defective column and common test line.

Lee et al. teaches a common test line and at least one switch comprises a column test switch extending between a corresponding one of the data lines and the common line See Fig. 5, items T1-T3, D1-D6, in description See Col. 3, Lines 13-24).

It would have been obvious to one of ordinary skill in the art at the time of invention to use common test line as shown by Lee et al. in the Henley, Haruhiko and Keeney et al. apparatus to close a first or/and second of the switches connected to the defective column and common test line in order use effectively LCD substrate space (See Col. 2, Lines 8-15 in the Lee et al. reference).

Response to Arguments

8. Applicant's arguments filed 09.26.05 have been fully considered but they are not persuasive:

In response to applicant's argument that Harunko teaches shorting switches that selectively short adjacent lines together during non-imaging periods (in claims only "image data") (See page 8, 1st paragraph of Remarks) or Murade does not teach or suggest connecting data lines together so that one data driver can drive both lines during imaging (in claims only "image data") (See page 9, 3rd paragraph of Remarks), a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Allowable Subject Matter

9. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Relative to claim 15 the major difference between the teaching of the prior art of record (APA, Haruhiko and Murade) and the instant invention that prior art does not disclose plurality of column driver switches each connected to one of the column lines and to one of the column drivers, and a plurality of registers each connected to control terminals of the column driver switches, the method further comprising storing a data value in one of the registers connected to a first one of the column driver switches to provide a control signal to close the first column driver switch.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 571-272-7683. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on 571-272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LS
12.03.05

AMR A. AWAD
PRIMARY EXAMINER
